Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

OCTOBER 2002 ✦ VOL 30

FLYING BLIND in a cloud of DUST

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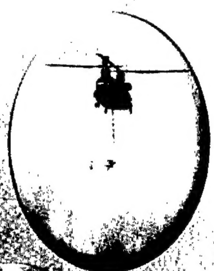

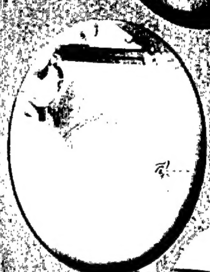

POV FATALITIES through 31 August

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James E. Simmons
Brigadier General, US Army
Commanding

DASAF's CORNER

from the Director of Army Safety

When The Arrows Are Pointing Up...

We didn't experience a good year in Army safety. For FY02 safety performance, the arrows representing increases or decreases in Class A accidents and fatalities are all pointing in the wrong direction—UP!

Shortly after the beginning of FY02, the call came for the Army to execute its primary mission of fighting and winning our Nation's war. This year, overall, our units have performed magnificently on the battlefield fighting this war on terrorism, protecting our installations, executing home station training, conducting training center rotations, and fielding new equipment and formations.

No one could doubt that it's been a busy year in this Army. Our deployment and redeployment rate is up compared to FY01. But hazards abound not only in combat; they are also ever-present in our training environment as well. If left uncontrolled, individual hazards can cumulatively raise risk to unacceptable levels. During FY02, we did experience some breakdowns in risk management, leadership, discipline, training, and standards, and the costly consequence has been lives lost and equipment damaged or destroyed.

A statistical summary

We experienced 206 fatalities compared to 168 last year, an increase of 23 percent. Of those 206 fatalities, 140 soldiers died in off-duty ground accidents (113 of those in POV accidents, which are still our number one killer of soldiers), 49 in on-duty ground accidents, and 17 in aviation accidents. Overall, our Class A accidents are up by about 23 percent this year and by about 17 percent over the 3-year average.

Analysis of ground fatalities reveal—

- A 143-percent increase in fatalities resulting from water activities.
- A 96-percent increase in fatalities related to training activities (11 fatalities from Army motor and combat vehicle accidents, 9 from physical exertion, 9 from explosions/fire, and 1 from a gunshot wound).
- A 53-percent increase in fatalities resulting from motorcycle accidents.
- A 2-percent increase in fatalities resulting from POV (other than motorcycle) accidents.

Analysis of aviation accidents reveal—

- Nine of the twenty-six Class A accidents involved collision with the ground.
- Six involved brownout or whiteout.
- Four involved a materiel failure.
- Four accidents also involved a tree or wire strike.
- In two accidents, crews encountered inadvertent instrument meteorological conditions.
- The majority of the accidents occurred during night and single-ship missions.

Lessons learned

The business of warfighting and training for combat are inherently dangerous. Mistakes happen. Leading soldiers is an awesome responsibility and every day is not guaranteed to be smooth and fun. Mistakes are made as soldiers do their best to execute the mission and tasks we ask them to do. A zero-defects mentality is not a good thing. In fact, it leads to soldiers being hesitant to do tough, realistic training for fear that a mistake could mar their careers. We have to give young leaders an opportunity to grow and learn from their mistakes. It's important that we as an Army be forgiving of honest mistakes that soldiers and leaders make, but there is no forgiveness for irresponsible behavior or allowing hazardous conditions that unnecessarily put soldiers' lives in jeopardy to escalate uncontrolled.

If we as leaders are technically and tactically competent and are aggressively involved in planning, preparation, and execution of assigned missions, we can keep soldiers safe and do the realistic training that replicates combat conditions.

Leaders must be technically and tactically competent and must be involved in the planning, preparation, and execution of missions. If battalion commanders are present during training events, we have fewer accidents. That means the commander must use risk management if he or she is going to avoid the micro-management image. A particular training event may be acceptable for Company A to execute on its own, while Company B is not at a level to train unsupervised.

Understandably, commanders are busy; but E-leadership is not the Army standard! It takes personal involvement and sometimes extending some of that tough love from the "old man." If you can't be present, get your most experienced people out there supervising.

What we can do in FY03

As the remainder of the FY02 field accident data continues to come in over the next few weeks, the numbers will change slightly and we will continue our analysis of the data, searching for additional hazards and developing controls that can be put in place to prevent future similar accidents. But none of our continued research or analysis will find any single silver bullet to stop this unnecessary loss of lives and damage to our equipment and make FY03 safety performance better. Reversing this upward trend in accidents will happen only if we as leaders adhere to the Army standard of informed risk decisions made at the appropriate level of command and enforcement of standards and discipline.

Ruthless enforcement of discipline and standards in our units is critical to improving safety performance. No Kevlar, no seatbelts, out of uniform, speeding, failing to salute a senior officer, flapping canvas—all are signs of indiscipline. A new, lower standard is set every time a leader walks by without correcting it. Increasing demands on our time does not relieve us as leaders of our responsibility to enforce standards and discipline.

We also know very well that flogging leaders doesn't stop accidental losses. That's not the intent here. But as an Army, we do hold leaders responsible and accountable for the safety of the soldiers entrusted to their care. With acceptance of command comes that awesome responsibility. If we as leaders are technically and tactically competent and are aggressively involved in planning, preparation, and execution of assigned missions, we can keep soldiers safe and do the realistic training that replicates combat conditions.

When the FY03 safety performance summary is posted, the arrows will be pointing in the right direction—**DOWN**—if we as leaders have strictly enforced standards and discipline, and have put the proper controls in place to mitigate risks.

Train hard, but train safely by managing risks!

James E. Simmons

Flying Blind in a cloud of Dust

While accidents caused by brownout aren't the biggest problem that aviators face, you can just about count on there being at least one or two Class A or B accidents every year. And that doesn't count the Class C, D, and Es that result from encounters with blowing dust.

This isn't just the new guys—the ones not long out of flight school and on their first tactical assignment—that find themselves suddenly engulfed in a cloud of blowing dust or sand. When that happens and the crew loses sight of the ground, even someone with

hundreds of flight hours can allow the aircraft to drift into the nearest obstacle or descend until it smacks into the ground. As a matter of fact, experience can actually become a contributing factor in this kind of accident when an aviator who has flown mission after mission in such conditions becomes overconfident and fails to follow the established procedures.

Generally, these procedures specify that in dusty conditions, aviators should make a running landing. If a terrain doesn't permit a running landing, aviators should plan to make an approach to the ground. Above all, the aircraft should not be brought to a hover. The same is true when taking off. A running takeoff is preferable for wheeled helicopters; but if that isn't possible, the helicopter should become airborne as quickly as possible by making a maximum performance takeoff. That's what the PC in the following case failed to do.

■ The UH-1 was operating in an area that had been heavily used by tanks. The last mission of the day was to conduct an orientation flight of the mock battle area. The crew picked up their four passengers and had completed about one-third of the flight when they spotted a soldier walking along a tank trail. Thinking it strange that anyone would be in what they thought was an impact area, the crew decided to land and investigate.

The aircraft landed about 35 meters from the tank trail, and the crew chief got out to talk to the soldier. The soldier was looking for his helmet that had been lost earlier that day. The crew chief offered him a ride back to the observation point, and the soldier and the crew chief got into the helicopter. The PC, who was flying the aircraft from the left seat, took off. But before the aircraft reached translational lift, it was engulfed by powdery dust blown up from the tank trail by rotorwash.

The aircraft drifted to the right. The PC knew there were trees in front of the aircraft, and he pulled in torque and turned to the right to avoid a 55-foot tree. The aircraft had flown about 380 feet when the blades hit four trees in quick succession, then hit the ground nose-low, rotated on its nose, and rolled onto its left side. The crew and passengers escaped with minor injuries.

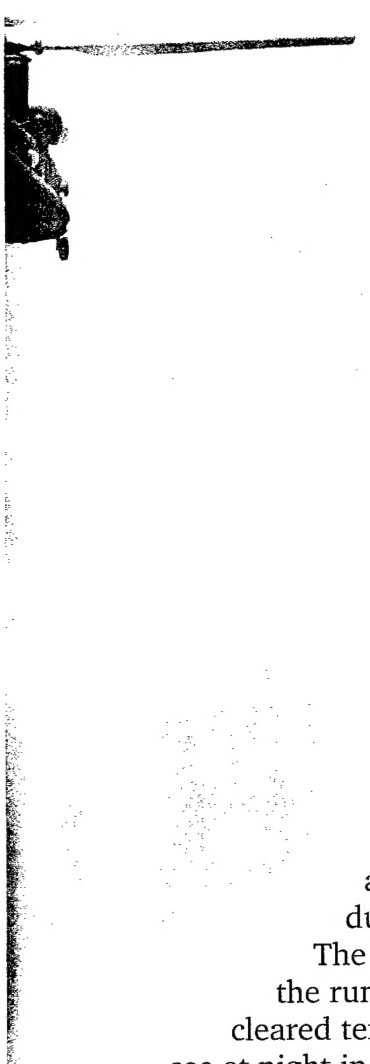
The PC had experience flying in both dust and snow, and he knew the area from which he was taking off was dusty—but he didn't expect a brownout. When he took off, he applied forward cyclic instead of using collective to establish a climb, which would have allowed him to fly out of the brownout conditions.

The crew in the following accident was conducting a night-aided flight in a CH-47D when they encountered rotor-induced brownout while landing on a dirt runway.

■ The CH-47 was the lead ship in a flight of seven Chinooks taking part in a tactical training mission. The 3-hour NVG flight to the LZ was unremarkable, and arriving at the LZ, each aircraft proceeded to its pre-designated landing point. On this mission, the aircraft would not be landing to the long axis of the runway. Instead their approach would be perpendicular to the runway. The runway sloped downward 2 degrees from the crown along its long axis and, because the aircraft would be landing at a right angle to the long axis of the runway, this slight slope (which was unknown to the pilots) would be a factor in what happened later. Drainage ditches

paralleled the runway, separating dirt berms on either side from the usable runway surfaces.

The copilot was on the controls as the aircraft approached the south edge of the runway, which was oriented east to west. On short final, he spotted the ditch in the vicinity of his intended touchdown point and elected to extend the approach farther across the runway. As the aircraft touched down past the crown of the runway, the 2-degree downward slope extended the distance for the front main landing gear to touch down, thus extending the point at which braking could be applied. As the front main gear touched the ground during the landing rollout, the helicopter was enveloped in a cloud of dust from the rotors.



Both pilots were looking down and to each side of the aircraft and neither of them saw the earthen berm ahead. No one involved in the mission was aware of the berm, and it hadn't been mentioned during the mission briefing. The berm was the same color as the runway and the surrounding cleared terrain, making it difficult to see at night in the blowing dust.

When it became apparent that the ground roll was excessive and the aircraft was nose low (indicating a downslope), the PC refocused his attention toward the front. Seeing the aircraft's refueling boom pass closely over the berm, the PC took the controls and initiated a go-around. The maneuver was too late to prevent striking the berm and causing nearly $400,000 in damage to the aircraft's underside, lower antenna, and chin-mounted FLIR turret.

The copilot of this aircraft had 4,516 total flight hours, and the PC had 3,836 hours. When aviators with this kind of experience can find themselves in a brownout situation, it should serve as a warning that it can happen to anybody.

Many accidents involving blowing dust and brownout are limited to Class D and E damage. A crew loses sight of the ground and the aircraft lands hard, or a wheel rolls into an unseen hole or hits a berm, or a skid is damaged when it lands on a rock. In other cases, the aircraft drifts into trees or other obstacles because the crew loses visual references.

Some of these blowing dust encounters are caused by operating requirements and not necessarily by something the crew did wrong. For example, aircraft attempting to hook up external loads are particularly vulnerable to rotor-induced brownout. As a result, loads may be turned over as the aircraft drifts or have to be jettisoned when a go-around becomes necessary. These are cases where good crew coordination and communication are particularly important. Often the crew chief is in the best position to spot developing brownout conditions and warn the pilots.

While aircraft sometimes must operate in dry and dusty conditions, many times exacerbated by heavy vehicle traffic, there are two things aircrewmembers should always keep in mind—

- Be sure you are familiar with the procedures in your aircraft operator's manual and the instructions in FM 1-202, *Environmental Flight*, for operating in these conditions.
- Treat each mission as if it were your first. Familiarity with an area and overconfidence in ability to operate in dusty conditions have led many an experienced aviator to be a little less vigilant, a little less cautious...and suddenly, he's flying blind in a cloud of dust. ◻

Aircrew Coordination: The Year in Review

In the July 2001 *Flightfax*, LTC W.R. McInnis wrote, "We have all been through academic and flight training to enhance crew coordination in the aircraft, but the investigators at the Safety Center continue to find cases where lapses in crew coordination directly contribute to serious accidents." Sadly, this observation is just as true a year later.

The Safety Center recently conducted an analysis of conditions present in FY02 Class A and B aviation flight accidents and found that 45 percent (9 out of 20*) were related to crew coordination failures. The data supports Paula Allman's conclusion that "poor decision-making has to rank number one in the issues we should strive to address" (July 2002 *Flightfax*).

"But we've all had the training!"

The Army Research Institute (ARI) developed the initial, mandatory ACT Exportable Training Package in the early 1990s, but program funding did not provide a mechanism to effectively sustain high levels of aircrew coordination training. So while the aviation accident rate dropped following its inception, and although commanders and aircrew alike acknowledged the benefit of the program, it has not been updated since its original introduction. Meanwhile, operational demands have steadily climbed and military rotary-wing aircraft have become increasingly more complex, necessitating a higher-than-ever level of coordination among all rated and non-rated members of the aircrew.

"So... what do we do about it?"

The U.S. Army Aviation Center (USAVVNC) has convened an aircrew coordination working group at Fort Rucker to provide continual guidance and oversight of a multi-phase effort to develop interactive, computer-based and instructor-facilitated training modules that make ACT realistic and relevant.

This superior exportable training package will—

- Include Internet-based training, so that it can be easily accessed and updated regularly to remain current with changing Army needs.
- Develop "aircraft-specific" training support packages so that individual units can access training modules that are directly relevant to their mission.
- Utilize the computer technology to allow for an engaging level of interactivity with the user, which is more in line with adult learning models than paper-based instruction.

For now...

In the interim, we would like to remind you to make safety your daily priority by adhering religiously to crew coordination basics:

- Maintain team relationships that demonstrate a healthy respect for crewmembers' competencies. Encourage active participation in decision-making, regardless of rank, personalities, or experience levels.
- Be proactive by identifying hazards and potential threats and plan accordingly. Remember that effective risk management involves anticipating, reviewing, and rehearsing contingencies for difficult segments or unusual events.
- Manage workload levels by ensuring that all crewmembers understand mission requirements, responsibilities, and contingencies.
- Identify and prioritize competing mission tasks. Attend to flight safety and other high-priority tasks first, and avoid distraction from essential activities. This is supported through diligent cross-monitoring of one another's performance, and through the most critical crew coordination task, communication.
- Listen carefully and communicate clearly. Effective aircrews attend to the sender of communications, ask questions when unsure, restate the message if necessary, and acknowledge the message both verbally and through their actions.

These are the principles that allow us to establish and maintain safety and effectiveness in the cockpit. As recent mishaps remind us, understanding crew coordination skills is important, but practicing them in our daily operations is critical. □

—Dr. Larry Katz, Research Psychologist, Army Research Institute Rotary Wing Aviation Research Unit, Fort Rucker, AL 36362, DSN 558-2385, katzl@rwaru.army.mil

*Of the 25 Class A-B accidents, 3 were materiel-related and 2 are currently under investigation.

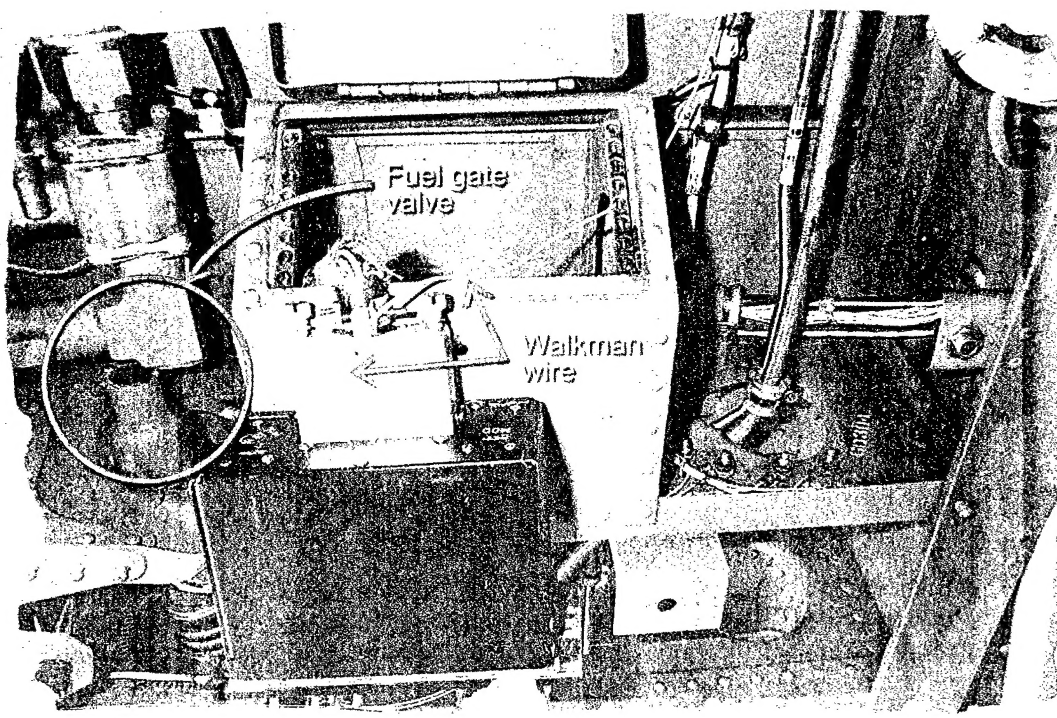
Unauthorized Aircraft Modifications

The investigation revealed an unauthorized "Walkman" radio-type modification to the accident aircraft's wiring and aft intercommunications system (ICS) box. While it seems like a harmless modification, listening to music during flight operations may impede mission success.

This unapproved modification allowed the crewmembers to hook up a CD player, radio, or cassette tape player to the #4 HF radio volume control knob and listen to music during missions. While seemingly a harmless modification, listening to music during flight operations may impede critical radio transmissions, ATC clearances, or crewmember-to-crewmember communications during critical flight phases such as clearing the aircraft from obstacles.

Additionally, the unauthorized installation could have allowed stray voltage from the ICS box to ignite fuel vapors when the #1 engine fuel gate valve broke during the accident sequence. The Board could not determine if the modification affected (reduced) the overall volume level of the ICS. The ICS box and wiring installation is being sent to CCAD for teardown analysis, volume testing, and stray voltage analysis. ■

—Aviation Systems and Accident Investigation Division, DSN 558-2194 (334-255-2194)



The general WARNING page of TM 55-1520-240-10(a) states: "No electrical/electronic devices of any sort, other than those described in this manual or appropriated Airworthiness Release and approved by AMCOM, are to be operated by crewmembers or passengers during operation of this helicopter."

Between the Ears: Cognitive Factors in the Cockpit

Do you wonder how your brain functions to enable you to fly your aircraft? Do you wish you knew more about what causes human error in aviation accidents? Do you marvel at how much information you can process while handling your aircraft?

Well we wonder, wish, and marvel all the time. In fact, that's what the Army pays us to do. You see, the U.S. Army Aeromedical Research Laboratory (USAARL) has a cognitive factors research team. That means we study learning, memory, language, and communication as they relate to aviators and their actions in the cockpit.

How does cognition relate to aviation?

Workload, situation awareness, and crew coordination are terms with which every aviator is familiar. These concepts are all vital to successful aviation operations and are all related to the cognitive abilities of aviators. The ability to remain aware of the aircraft and battlefield situation around you is highly related to the changing workload state and how well you and your crew can coordinate your actions.

As Army Aviation progresses to more advanced aircraft with increasing mission capabilities and computerized cockpits with multifunction displays (MFDs), the need for better

understanding of the cognitive components of aviation tasks and their cognitive demands on aviators increases substantially.

Our research goal is to develop a better understanding of how these three essential components in aviation are increasingly intertwined on the modern battlefield and in advanced cockpits. This research involves several approaches. A brief overview of some of the chief concerns follows.

Accidents happen...

...and we should learn from them. Every month, we read in these pages about recent accidents, many of which are deemed due to human factors. Part of this work involves reviewing accident reports in order to determine what types of individual failures are being made most frequently. For example, are accidents most related to lapses in crew coordination or are they due more often to overwhelming workload? In addition, this research is examining differences in accident causes related to aircraft with different cockpit styles (traditional versus MFD-equipped).

What can the eyes tell us?

Humans are information processors. We take in information through our senses and use that information to understand the world around us. In the aviation domain, visual workload can be very high (e.g., instrument scanning, maintaining awareness of aircraft and ground relationships), but can also be affected by other cockpit events such as increases in auditory workload (e.g., communications, warning sounds). Eye-tracking technology enables researchers to record detailed eye movements in order to determine where in the cockpit aviators are looking and attending at any given time. New research is emerging that will utilize eye-tracking to determine basic information about visual scan patterns, as well as how scans change as workload levels change and how scans are used in cockpits with MFDs.

Youth versus experience

Experience with any complex task invariably improves that individual's performance. The same is often considered true in aviation. Yet little is known how new aviators differ from those more experienced when it comes to handling workload and cockpit tasks. Conversely, the introduction of MFDs into Army aircraft leads some to suggest that young aviators who have more computer experience may be better able to learn the complexities of MFD-equipped aircraft than their older, more aviation-experienced but lesser computer-experienced counterparts. New research will be investigating the differences and similarities as well as strengths and weaknesses of newly trained and highly experienced aviators.

How can you help?

This has been a brief overview of some of the research concerns the cognitive factors team has. If you have comments, concerns, or questions regarding the research discussed in this article, please call, write, or drop by. Also, you may see requests for volunteers or receive surveys. Please participate. Research is much improved with a large number and variety of participants. Finally, keep your eye out for more research news...this research exists to benefit aviators!

—POC: CPT Gina E. Adam, Ph.D., USAARL, DSN 558-6806 (334-255-6806), gina.adam@se.amedd.army.mil; visit the USAARL website: www.usaarl.army.mil

Lead-the-Fleet Leads the Way

Imagine walking to the flight line one bright and beautiful day. You're thinking to yourself, "It's a good day to fly." Visibility is excellent, everything is running according to schedule, and you just feel good. Then, at your pre-flight briefing, your commander tells you that today, you're going to fly double your regular flight hours, pack and wear gear at least twice as heavy as what's used for a standard flight, and then come back and be dissected to determine what all those extra hours and weight did to your body. And, oh, by the way, you've got to come back and do it again tomorrow.

Welcome to the life of a Lead-the-Fleet (LTF) aircraft pilot. LTF, a flight test program vital to the mission of Army Aviation, was reinstated recently after a lapse of nearly a decade. The LTF program, which enjoyed almost 10 years of success in the late 1980s and early 1990s, is bound to continue paving the way for future aircraft fleets in all aspects of Army Aviation, including safety. What better place to conduct such an innovative program than the "Home of Army Aviation," Fort Rucker, Ala.?

The organization behind LTF's past and future success is the U.S. Army Aviation Technical Test Center (ATTC), located at Cairns Army Airfield, Fort Rucker. As the Army's premier aviation flight test facility, ATTC has a long and colorful history in evaluating all aspects of aircraft before they ever hit the field. A talented and highly trained staff of experimental test pilots, uniquely qualified to meet the requirements and risks of developmental testing, carry out ATTC's mission to optimize the Army's warfighting capability by conducting air qualification and handling qualities testing on aircraft, aviation systems, and associated aviation support equipment throughout the acquisition life cycle.

ATTC, previously the U.S. Army Aviation Development Test Activity (ADTA), historically has conducted reliability and logistical evaluations for fleet-representative Army aircraft before and following fielding. In years past, ATTC executed an accelerated flight program that resulted in the aircraft "leading the fleet" in terms of flight time. These tests were valuable in identifying reliability, availability, and maintainability (RAM) issues and other vulnerable areas before they adversely affected the fielded fleet.

The LTF program was officially conceived in early 1986 when the Commander, U.S. Army Materiel Command (AMC), directed the U.S. Army Aviation Systems Command (AVSCOM) (now the U.S. Army Aviation and Missile Command (AMCOM)) to establish a "lead-the-fleet"

program. At the request of AVSCOM, the U.S. Army Test and Evaluation Command (TECOM) (now the U.S. Army Developmental Test Command (DTC)) tasked ADTA to execute the new program later that same year.

The original LTF program encompassed all rotary-wing aircraft that would be utilized through the 1990s. Aircraft included were the UH-1H Iroquois, AH-1F Cobra, UH-60A Black Hawk, AH-64A Apache, and CH-47D Chinook. The OH-58C Kiowa and the OH-58D Kiowa Warrior were added to the program during fiscal year (FY) 1991; the AH-1F, UH-1H, and OH-58C were removed from the program in FY93; and the UH-60L was added to the program in FY94.

Although the LTF program ran smoothly for nearly 10 years, it was terminated in February 1995 because of funding issues. While the benefits from previous LTF flight testing were apparent for two or three years, fleet-wide difficulties with several aircraft systems surfaced in following years. After LTF's suspension, an increase in the number of aviation safety action messages and safety of flight actions, sometimes restricting aircraft use and requiring special inspections, maintenance procedures, and reporting, was also observed.

As a result of growing concern over the operational readiness of Army rotary-wing aircraft, as well as other aviation sustainment issues, AMCOM and the Program Executive Office-Aviation (PEO-AVN) re-initiated LTF discussions in early 2000. The information gathered was presented to the Aviation Task Force (ATF) General Officer Steering Committee (GOSC) later in spring 2000. The ATF GOSC identified LTF as a key element in supporting fleet readiness and recommended re-establishment of the LTF program to the U.S. Army's Vice Chief of Staff in July 2000. Less than a month later, ATTC was tasked to execute the LTF program and begin testing on the AH-64A/D, UH-60A/L, CH-47D, and OH-58D, with the CH-47F, UH-60M, and RAH-66 (still in the engineering and manufacturing development phase) to follow in future years. Funding for the program was provided following the FY02 midyear review. The "maiden" flight for the first LTF aircraft of the new millennium was conducted in May 2002.

Like before, the main objective of the LTF program is to operate Army fleet-representative aircraft at an accelerated operational tempo to acquire engineering and operational data to be used for providing a continuous evaluation of RAM issues facing aircraft and their associated aircraft survivability equipment (ASE) suites. LTF aircraft will accumulate flight hours at double the rate of aircraft in field units, and will carry extra weight to approximate the effects of normal ammunition combat loads and internal and sling loads. The controlled conditions and flight profiles planned for LTF testing will provide the opportunity for experts to examine how the aircraft and its systems and hardware endure over an extended period of time in different operational scenarios.

In addition, the LTF program is designed for the timely collection of engineering flight test data for the AMCOM Aviation Engineering Directorate (AED), who will use the data for baseline comparison purposes. When these data indicate a design flaw, AMCOM engineers will begin working to develop a fix before the issue becomes a major problem.

Just as in the past, the LTF program is sure to continue its legacy of providing the data needed for the Army to provide a more affordable, reliable, and safer fleet for our aviators and soldiers. ■

Editor's note: *I'd like to welcome Julie Shelley to the Safety Center. She comes to us from ATTC where she was a technical editor and acquired detailed knowledge of the LTF program. This is the first of many feature articles from Julie that you can look forward to.*

—Julie Shelley, Countermeasure Managing Editor, DSN 558-2688 (334-255-2688), julie.shelley@safetycenter.army.mil

When Do The Rules Change?

As experience in previous and current operations confirm, there is a strong focus on the part of the unit to get the job done. While this attitude is desirable and should be encouraged, leadership oversight should be exercised to ensure that the desired end state does not allow an erosion of standards en route to mission accomplishment. To accomplish the mission, the Army maintains the doctrine "Train as we fight."

As an integral part of aviation operations, risk management should not become a casualty of the desire to accomplish the mission.

Training to accomplish any task or mission is based on approved published standing operating procedures (SOP); tactics, techniques, and procedures (TTP); regulations; and training manuals. These documents reflect what is to be trained, the minimum training hours required, who can conduct the training, and the evaluation requirements. If the training plan is not followed, the training received will not be to standard, which risks not only the lives of the crew, but jeopardizes mission accomplishment. If the training plan does not support the mission, then it should be changed as required by the appropriate authority and incorporated into the literature for future use.

As an integral part of aviation operations, risk management should not become a casualty of the desire to accomplish the mission. The briefing officer training program established in garrison should continue to be followed, as well as the garrison risk assessment form. If the form does not support the deployment, then it should be revised to cover all contingencies as necessary by the appropriate authority and then incorporated as the unit standard.

During times of conflict (hostile fire or mission load) when resources are scarce, the sense of urgency is heightened and there is an overwhelming desire to succeed. This desire is often manifest in a tendency to stray from the way the unit normally conducts business. This trend not only undermines the training status/readiness of the unit, but it is also inherently dangerous. We undermine the core principles of our training plan when we cut corners in the execution of our mission.

If the established training literature (SOP, TTP, ATM, AR, or FM) does not support current requirements, then change the literature and subsequently the way we do business. These changes should be made by the appropriate proponent for the document to be changed. If the proponent change cannot be made, then utilize the procedures that currently exist to handle the situation. By following established procedures (or revised procedures approved by the appropriate authority), we will ensure that the right training is taking place and that our training literature is always the most current available. This practice will ensure that we do not continue to "reinvent the wheel" with every deployment.

When do the rules change? When necessary to accomplish the training mission, but only after approval by the appropriate authority. The rules should never change just to accomplish the mission. Remember, if it is not okay to do it that way at home station, then it is not okay to do it that way when deployed.

Within us as Americans, and especially within the American fighting man, there is a strong "can do" spirit. No American fighting man wants to tell his superiors that HE cannot do it. There are commanders who count on this spirit when they know what they are asking of their men is wrong, but they persist because they do not want to tell their superiors that THEY cannot do it. At all times and especially in combat, we rely on commanders at all levels to stop the madness and say no when necessary, and only say yes after all the principles of risk management have been applied. ■

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Commander's Safety Course: The Road Ahead

Every commander is the safety officer for his unit and is personally responsible and accountable for the safety of soldiers and the safe conduct of unit activities in operations and training. As the Army Safety Officer, the Chief of Staff, Army (CSA) has repeatedly emphasized the importance of aggressive involvement of commanders in the safety of their units.

The CSA directed the development of a Commander's Safety Course (CSC) to ensure commanders have the knowledge and the tools to effectively manage their unit safety programs and to incorporate risk management into all unit planning and activities. Specifically designed to provide safety tools to assist in creating and implementing an effective safety program, commanders now have available, through the online CSC, risk-management tools that can help them reduce accidents among soldiers and civilian employees, both on and off duty. The course leverages multimedia, web-based distance-learning technology and is accessible and easily retained for everyday use. Alternately, the course is available as a CD-ROM.

The CSC incorporates refresher risk-management training using three tools—Resource Navigator, Risk Management, and the Unit Safety Program (USP)—for commanders to use in implementing a safety program and managing risk within their units. Equivalent to 30 classroom hours, the courseware contains five modules: Army safety, driving safety, unit safety, resource navigator, and risk management. The courseware includes progressive checks on learning and tests for each module that certifies the student as having completed the course.

The tools may be downloaded and used as risk management resources in the unit. The Resource Navigator enables the commander to quickly access risk management and safety resources from internal and external sources such as Army Knowledge Online (AKO) and the U.S. Army Safety Center (USASC).

The Risk Management Tool automates the risk management process described in FM 100-14: *Risk Management* and uses a database of shared risk-management worksheets that allow the exchange of knowledge and experience Armywide. Risk management worksheets will be shared by the TRADOC Distance Learning web site and the USASC Risk Management Information System (RMIS).

The USP Tool transfers conceptual information for drafting a USP into practical applications in the unit. This particular tool also allows users to access guidance from internal and external sources through the Internet and to check their USP against a model safety program and checklist.

On 1 October 2002, the CSA directed that company-grade officers complete CSC before assuming command (Implementing Message from HQDA WASH DC//DAMO-TRZ//141224ZAug02, Subject: Commander's Safety Course). Brigade commanders will certify successful completion. Brigade- and battalion-level commanders must complete the CSC before attending the Fort Leavenworth Pre-Command Course.

Commanders may register for the course at **https://www.aimsrdl.atsc.army.mil** or **https://www.atrrs.army.mil**. Some 1,200 students are currently enrolled. When completed, students will be awarded a certificate of completion as their course record.

All Army leaders are encouraged to complete CSC and use the tools. First sergeants and other non-commissioned officers, enlisted personnel, safety officers, facility managers, shop chiefs, and other federal civilian employees are encouraged to enroll in the CSC for self-development at **https://www.atrrs.army.mil**.

Future plans include incorporating the CSC into the U.S. Army Sergeants Major Academy (SMA) curriculum. This action will support the existing three common core tasks that have been revised for the Sergeant Major of the Army (SMA). ■

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Safety Messages:

Recap of selected 3rd & 4th Qtr FY02

The following is a listing of selected aviation safety action messages (ASAMs) and safety-of-flight (SOF) messages issued by Aviation Missile Command (AMCOM) from 1 Apr 02 through 30 Sep 02. Complete copies are available on the AMCOM web page at http://www.redstone.army.mil/sof.

AH-64

- **AH-64-02-ASAM-05** (TB 1-1520-238-20-126), 042000 Apr 02, maintenance mandatory, RCS CSGLD-1860(R1), all AH-64 series aircraft, initial and recurring inspection of the fire extinguisher check valves for corrosion. ***POC: Joseph Creekmore, DSN 897-2090.***

- **AH-64-02-ASAM-06**, 292025Z Apr 02, informational, RCS CSGLD-1860(R1), all H-60 and H-64 series aircraft, torque factor charts discrepancy. ***POC: Ron Price, DSN 788-8636.***

- **AH-64-02-ASAM-07** (TB 1-1520-251-20-05), 291130Z May 02, maintenance mandatory, RCS CSGLD-1860(R1), AH-64D series aircraft, replacement of the auxiliary power unit (APU) lifting lug. ***POC: Joseph Creekmore, DSN 897-2090.***

- **AH-64-02-ASAM-08**, 071230Z Aug 02, maintenance mandatory, RCS CSGLD-1860(R1), all AH-64D series aircraft, inspection of the pilot ardd bonding jumper. ***POC: Joseph Creekmore, DSN 897-2090.***

- **AH-64-02-SOF-05** (TB 1-1520-251-20-07), 301430Z Apr 02, operational, RCS CSGLD-1860(R1), all AH-64D series aircraft, removal of flight restrictions. ***POC: Joseph Creekmore, DSN 897-2090.***

- **AH-64-02-SOF-06** (TB 1-1520-251-20-07), 151830Z May 02, operational, RCS CSGLD-1860(R1), revision to AH-64-02-05, all AH-64D series aircraft, removal of flight restrictions. ***POC: Joseph Creekmore, DSN 897-2090.***

- **AH-64-02-SOF-07** (TB 1-1520-238-20-127), 032300Z Jun 02, technical, RCS CSGLD-1860(R1), all AH-64s, revision AH-64-02-SOF-04, initial and recurring inspection of the tail rotor blades. ***POC: Joseph Creekmore, DSN 897-2090.***

- **AH-64-02-SOF-08**, 261700Z Aug 02, technical, RCS CSGLD-1860(R1), all AH-64 series aircraft, auxiliary power unit (APU) clutch. ***POC: Joseph Creekmore, DSN 897-2090.***

CH-47

- **CH-47-02-ASAM-03** (TB 1-1520-240-20-147), 121715Z Jun 02, maintenance mandatory, RCS CSGLD-1860(R1), CH-47 series aircraft, inspect for improperly manufactured/assembled fuel control relay boxes. ***POC: Russell Peusch, DSN 788-8632.***

- **CH-47-02-ASAM-04** (TB 1-1520-240-20-149), 241630Z Jul 02, maintenance mandatory, RCS CSGLD-1860(R1), all H-47 series aircraft, inspection for untested critical safety item (CSI), P/N 114C3044-2, aft yoke support shaft. ***POC: Russell Peusch, DSN 788-8632***

- **CH-47-02-SOF-06** (TB 1-1520-240-20-148) 190015Z Jun 02, technical, RCS CSGLD-1860(R1), all CH/MH-47D/F series aircraft, inspection of combining transmissions. ***POC: Russell Peusch, DSN 788-8632.***

OH-6

- **OH-6-02-ASAM-02** (TB 1-2840-256-20-06 & TB 1-2840-263-20-04), 241640Z Jul 02,

maintenance mandatory, RCS CSGLD-1860(R1), all OH-58 and H-6 series aircraft, oil pressure reducer assembly. ***POC: Ron Price, DSN 788-8636.***

OH-58

■ **OH-58-02-ASAM-07** (TB 1-1520-248-20-65), 151402Z May 02, maintenance mandatory, RCS CSGLD-1860(R1), OH-58D, inspection and overhaul interval change for engine to transmission driveshaft. ***POC: Ron Price, DSN 788-8636.***

■ **OH-58-02-ASAM-08** (TB 1-2840-241-20-23, TB 1-2840-256-20-06, and TB 1-2840-263-20-04), 241640Z Jul 02, maintenance mandatory, RCS CSGLD-1860(R1), all OH-58 and H-6 series aircraft, oil pressure reducer assembly. ***POC: Ron Price, DSN 788-8636.***

■ **OH-58-02-SOF-03**, 261700Z Sep 02, technical, RCS CSGLD-1860(R1), all OH-58D aircraft with model 250 C30R/3 or 250 C30R/3M engine, electronic control unit (ECU). ***POC: Ron Price, DSN 788-8636.***

UH-60

■ **UH-60-02-ASAM-06** (TB 1-1520-237-20-252), 181430Z Apr 02, maintenance mandatory, RCS CSGLD-1860(R1), all H-60 series helicopters, collective and yaw boost servo assemblies swage pin collars. ***POC: Ron Price, DSN 788-8636.***

■ **UH-60-02-ASAM-07**, 292025Z Apr 02, informational, RCS CSGLD-1860(R1), all H-60 and H-64 series aircraft, torque factor charts discrepancy. ***POC: Ron Price, DSN 788-8636.***

■ **UH-60-02-ASAM-08** (TB 1-1520-237-20-256), 121720Z Jun 02, maintenance mandatory, RCS CSGLD-1860(R1), UH-60 series aircraft, inspect AN/ARC-220 wiring for chafing. ***POC: Ron Price, DSN 788-8636.***

■ **UH-60-02-ASAM-09** (TB 1-1520-237-20-257), 131345Z Jun 02, maintenance mandatory, RCS CSGLD-1860(R1), all H-60 series aircraft, tail rotor quadrant hardware installation. ***POC: Ron Price, DSN 788-8636.***

■ **UH-60-02-ASAM-10**, 251700Z Jun 02, maintenance mandatory, RCS CSGLD-1860(R1), MH-60K and MH-60L series aircraft, aerial refuel probe nozzles. ***POC: Ron Price, DSN 788-8636.***

■ **UH-60-02-ASAM-11** (TB 1-1520-237-20-261), 241955Z Sep 02, maintenance mandatory, RCS CSGLD-1860(R1), UH-60 series aircraft, revision to UH-60-02-ASAM-08 (TB 1-1520-237-20-256), inspect AN/ARC-220 wiring for chafing. ***POC: Ron Price, DSN 788-8636.***

■ **UH-60-02-SOF-07**, 012230Z May 02, technical, RCS CSGLD-1860(R1), all UH-60A/EH60A/UH-60Q series aircraft, main module planetary carrier assembly. ***POC: Ron Price, DSN 788-8636.***

■ **UH-60-02-SOF-08** (TB 1-1520-237-20-255), 041815Z May 02, technical, RCS CSGLD-1860(R1), all UH-60A/EH-60A/UH-60Q series aircraft, main module planetary carrier assembly. ***POC: Ron Price, DSN 788-8636.***

■ **UH-60-02-SOF-09** (TB 1-1520-237-20-258), 221415Z May 02 technical, RCS CSGLD-1860(R1), UH-60A/EH-60A/UH-60Q, main module planetary carrier assembly. ***POC: Ron Price, DSN 788-8636.***

■ **UH-60-02-SOF-10**, 080115Z Jun 02, technical, RCS CSGLD-1860(R1), UH-60A/EH-60A/UH-60Q series aircraft, main module planetary carrier assembly. ***POC: Ron Price, DSN 788-8636.***

■ **UH-60-02-SOF-11**, 092245Z Aug 02, technical, RCS CSGLD-1860(R1), all H-60 series aircraft, one-time inspection of main rotor blade cuff assembly. ***POC: Ron Price, DSN 788-8636.***

■ **UH-60-02-SOF-12**, 122015Z Aug 02, technical, RCS CSGLD-1860(R1), all H-60 series aircraft, revision to UH-60-02-11, one-time inspection of main rotor blade cuff assembly. ***POC: Ron Price, DSN 788-8636.***

Point of contact for SOF/ASAM message distribution, compliance reporting, and administrative matters is the AMCOM Safety Office. Technical or logistical questions should be addressed to the points of contact indicated in the messages. AMCOM Safety Office representatives: (256) 842-8620 or 313-2097 (DSN 788); E-mail: safeadm@redstone.army.mil.

ACCIDENT BRIEFS

Information based on preliminary reports of aircraft accidents

AH-64

A model

■ **Class A:** Acft was conducting an annual flight evaluation in the local training area when the aircraft entered the trees at 10,700 feet MSL. Initial reports do not specify if there were any caution, warning, or other malfunctions present at the time of the mishap. Aircraft was destroyed. The two injured crewmembers were transported to a local hospital via MEDEVAC.

■ **Class C:** Upon taxiing to parking pad for student change, the APU was started for shutdown. The power controls levers were retarded to idle, the APU fail lights illuminated, and the aircraft experienced a hard electrical shutdown. The crew attempted to restart the APU without success. The IP then waived the mechanic over to the aircraft where the mechanic instructed the IP to shut down the aircraft because fluid was coming out. After shutdown, damage was discovered to the APU clutch, driveshaft, anti-flail device, and bi-pod mount.

■ **Class D:** Aircraft had completed hot refuel and relocated for shutdown and crew change. During through flight, two holes were found on the left side of the stabilator, one on top and one on bottom. Also a .120" dent was found on the #1 inboard T/R blade, leading edge, two inches from the tip. Aircraft received temporary repair and was authorized a one-time return flight to home base by a maintenance pilot. The damage was caused by an unknown foreign object. Aircraft was repaired and returned to service.

D model

■ **Class B (Damage):** Acft experienced engine overspeed/overtemp during ECU lock-out operation. Acft was landed without further incident. Engine main rotor blades/hub and tail rotor blades/hub have been condemned and must be replaced.

■ **Class C:** Acft had just departed AAF when the #1 engine chip light illuminated. As the pilots were bringing the engine off-line, the #2 engine overtorqued. Acft returned to the AAF without further incident.

CH-47

D model

■ **Class A** (Avn Gnd): During a 50-hour maintenance ground run-up inspection, the aft swashplate failed (seized) causing negative pitch to be put into the blades. The left and right rear struts collapsed from this downward force. Acft rotor blades struck the tunnel cover and control tubes.

■ **Class B:** While in flight, at approx. 40 feet AGL, CE jettisoned the M119 Howitzer external load after suspecting that it struck the ground. The M119 sustained approx. $262K worth of damage.

MH-47

D model

■ **Class D:** During external load long-line operations, sling got wrapped around the aft left tire assembly and ski. The crewmember calling the load failed to notice this. When the load was lifted off the ground, the weight broke the tire assembly and ski.

E model

■ **Class A:** During a night vision goggle over-water formation flight in deteriorating weather conditions without a visible horizon, the co-pilot of the trail acft became spatially disoriented and rapidly closed on the lead acft despite repeated warnings from the pilot-in-command (PC) about his position. The PC took the controls and executed an abrupt evasive maneuver to avoid contact with the lead acft and lost control. As a result, the acft descended and impacted the water in a 16-degree, nose-down attitude at 157 knots airspeed. The acft was destroyed and all 10 personnel onboard were fatally injured.

OH-58

DI model

■ **Class C:** Aircrew was performing an SEF to an improved area (task 1053). The maneuver was initiated at 1500 feet on runway 33. Collective was lowered and autorative descent commenced. Low rotor warning occurred at 500 feet. Prior to this, the collective was raised to maintain RPM. At 500 feet, the collective was lowered again. At 100 feet, decel was initiated. At 60-70 feet, low rotor warning recurred and the IP took the controls. At 10-15 feet, initial was applied and acft impacted the ground in a level attitude. Skids spread and lower fuselage and antennas were damaged. Throttle was at idle the entire time.

DR model

■ **Class C:** Crew initiated emergency procedures after experiencing "FADEC FAIL" cockpit instrumentation warnings and a lack of RPM response in the manual mode. Crew executed an autorotation w/partial power and acft touched down in an open field. Main rotor blade (MRB) contacted the driveshaft cover and GPS antenna during touchdown.

■ **Class C:** During a simulated engine failure, acft experienced an engine overtorque and subsequent hard landing.

■ **Class D:** During a Force on Force screening mission at NTC, the crew decided to conduct ridgeline OP operations. The crew selected this OP so they could see the battlefield and extend their station time by landing and conserving fuel. As the PC attemped to land, the aircraft started an excessive nose pitch-up attitude and sliding rearward motion. The PC corrected with forward cyclic, whereby causing the main rotor blades to contact the right FM homing antenna.

■ **Class E:** During demonstration of hovering auto recovery techniques on the airfield, SP increased throttle to recover from demonstration maneuver resulting in an engine overtorque. Crew performed precautionary landing IAW operator's manual. The following limits were extracted from the pilot's and co-pilot's MFD: Engine Torque-130% for 1 second, mast torque-130% for 2 seconds, NG-105% for 0 seconds, TGT start 714 degrees, TGT run 800 degrees. Required visual drive train inspections complete with no aircraft damage. Aircraft released for flight.

UH-60

A model

■ **Class A:** Acft was taking-off from an unimproved landing area when it encountered brownout conditions. The PC instructed PI not to increase power further during the take-off; however, the PI increased power to TGT limiting, causing engine and rotor RPM to decrease, resulting in aircraft impacting the ground. Initial ECOD reflected Class D damage, but has since been upgraded to Class A damage.

■ **Class C:** The MRB tip made contact with trees while landing to a confined area for MEDEVAC (MAST) pick-up. Acft was cleared for one-time flight back to AAF following inspection.

■ **Class C:** The MRB sustained damage as acft was undergoing a maintenance test flight (engine run-up as part of a 100-hour inspection). The metal plug required to seal the "bleed-air" tube during the inspection ejected and flew into the MRB. Acft was shut-down upon detection of an air leak, and damage to the MRB was noted.

■ **Class C:** During an approach to a pinnacle, all four main rotor blades contacted a tree.

L model

■ **Class C:** Acft sustained damage and troop passenger sustained injury during air assault insertion. Acft struck two engineer pickets protruding from the ground while descending to touchdown and was subsequently raised back to a 20-foot hover. Soldier experienced ankle injury (suspected fracture) upon exiting the acft prior to touchdown. After observing the injured soldier, the crew landed the acft and a MEDEVAC was called in. Acft continued to staging base following inspection and release for one-time flight, sustaining sheet metal/undercarriage damage (4 holes).

■ **Class C:** M/R tip caps contacted tree during confined area operations.

■ **Class E:** During cruise flight, the pilot saw blood on the outside of the right windshield. He suspected bird-strike and returned to home airfield. Maintenance inspected the aircraft and inside of the No. 2 engine and found no damage. Aircraft released.

UC-35

■ **Class C:** While descending from FL410 to FL370, the pilot on the controls advanced the engine power levers to arrest the descent rate and increase the decaying airspeed. Both engines oversped to approximately 102.7%. The engine data recorder indicated the overspeed was 108%.

UV-20A

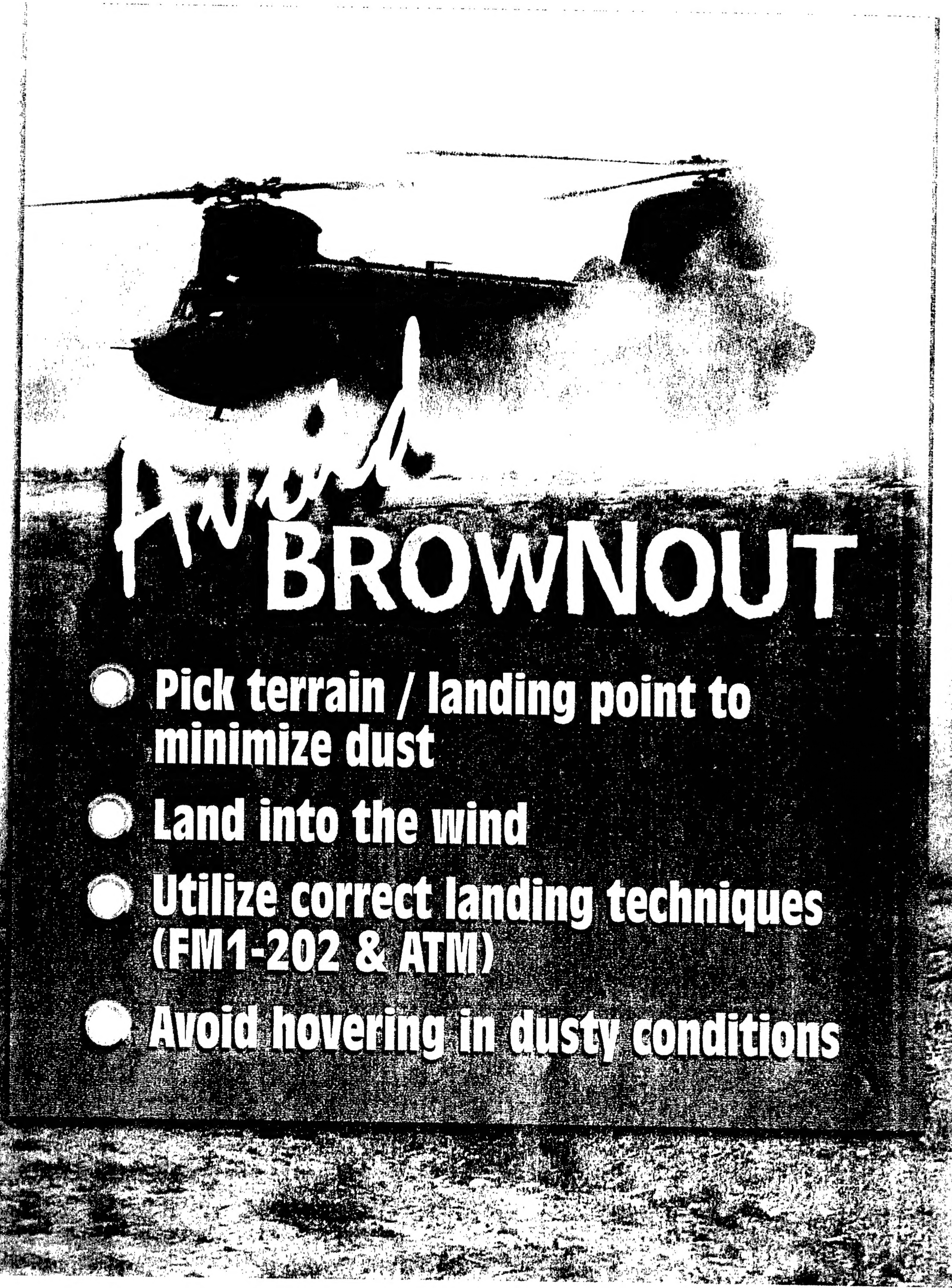
■ **Class A:** While descending from 3,500 feet AGL following a paradrop operation at an uncontrolled civil airfield under daylight visual meteorological conditions, the UV-20A collided with a Cessna 182 climbing to altitude for a paradrop. The UV-20A departed controlled flight and started a near-vertical, nose-down, spiraling right turn until ground impact. The UV-20A came to rest in a brushy, dry riverbed. There was no postcrash fire. The UV-20A was destroyed and the pilot-in-command was fatally injured. The jumpers aboard the Cessna exited safely after the collision, and the pilot landed the aircraft at the airfield.

C-23

B model

■ **Class D:** On takeoff roll, a seagull impacted right wing of aircraft. Takeoff was aborted and an external inspection of the impact area was done with no damage noted. During post flight, it was discovered that one propeller tip was slightly bent, approximately 1/4 of an inch. Propeller blade replaced.

Editor's note: For more information on selected accident briefs, call DSN 558-9552 (334-255-9552). Information published in this section is based on preliminary mishap reports submitted by units and is subject to change.


Avoid
BROWNOUT
Pick terrain / landing point to minimize dust
Land into the wind
Utilize correct landing techniques (FM1-202 & ATM)
Avoid hovering in dusty conditions